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US 4901461 A

US 4855723 A

US 4587753 A

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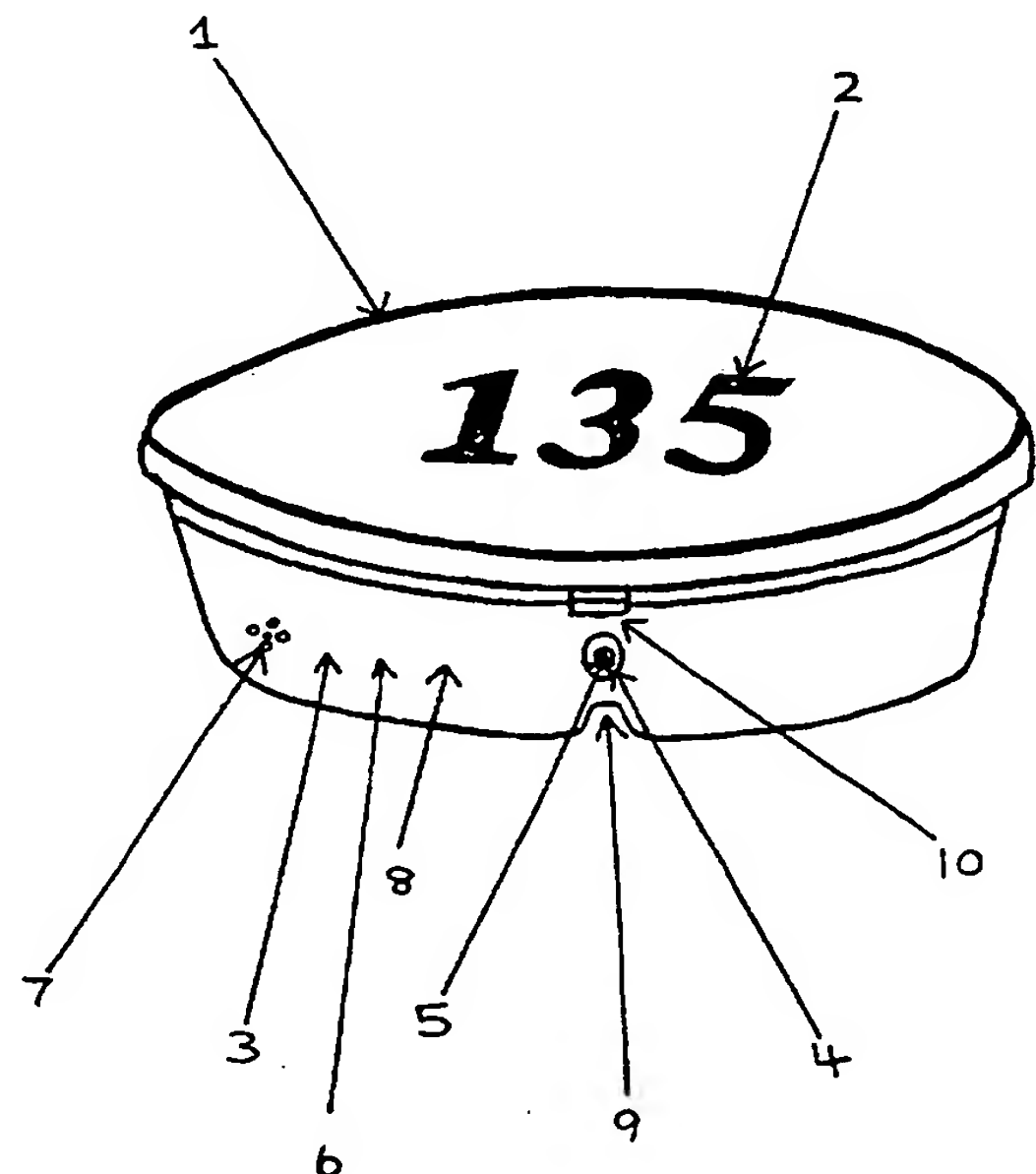
INT CL<sup>6</sup> G08B 5/00 5/36 5/38 , G09F 13/04

ONLINE: WPI

## (54) House sign lighting and alerting system

(57) The system comprises a housing 1, 3 the front of which includes the house number 2. The housing contains a lamp (6, Fig.4), a light sensor (5) and electronic control circuitry (17). The light sensor senses the onset of dusk and causes the circuitry to energise the lamp (battery or mains powered). The system also comprises a manually operable switch (22) remote from the housing. This switch is operable by a person in the house to send a signal (via a cable or wirelessly) to the circuitry which causes the lamp to flash. The housing may also contain an audible alarm, eg a voice alarm, which is also energised by operation of the switch. A smoke or other hazard detector in the house may also cause the lamp to flash and the alarm to sound. An automatic telephone dialler may also be provided. Other features that may be provided are solar cells to charge batteries in the housing, a PIR sensor to cause the lamp to come on when a person approaches and a video camera contained within the housing.

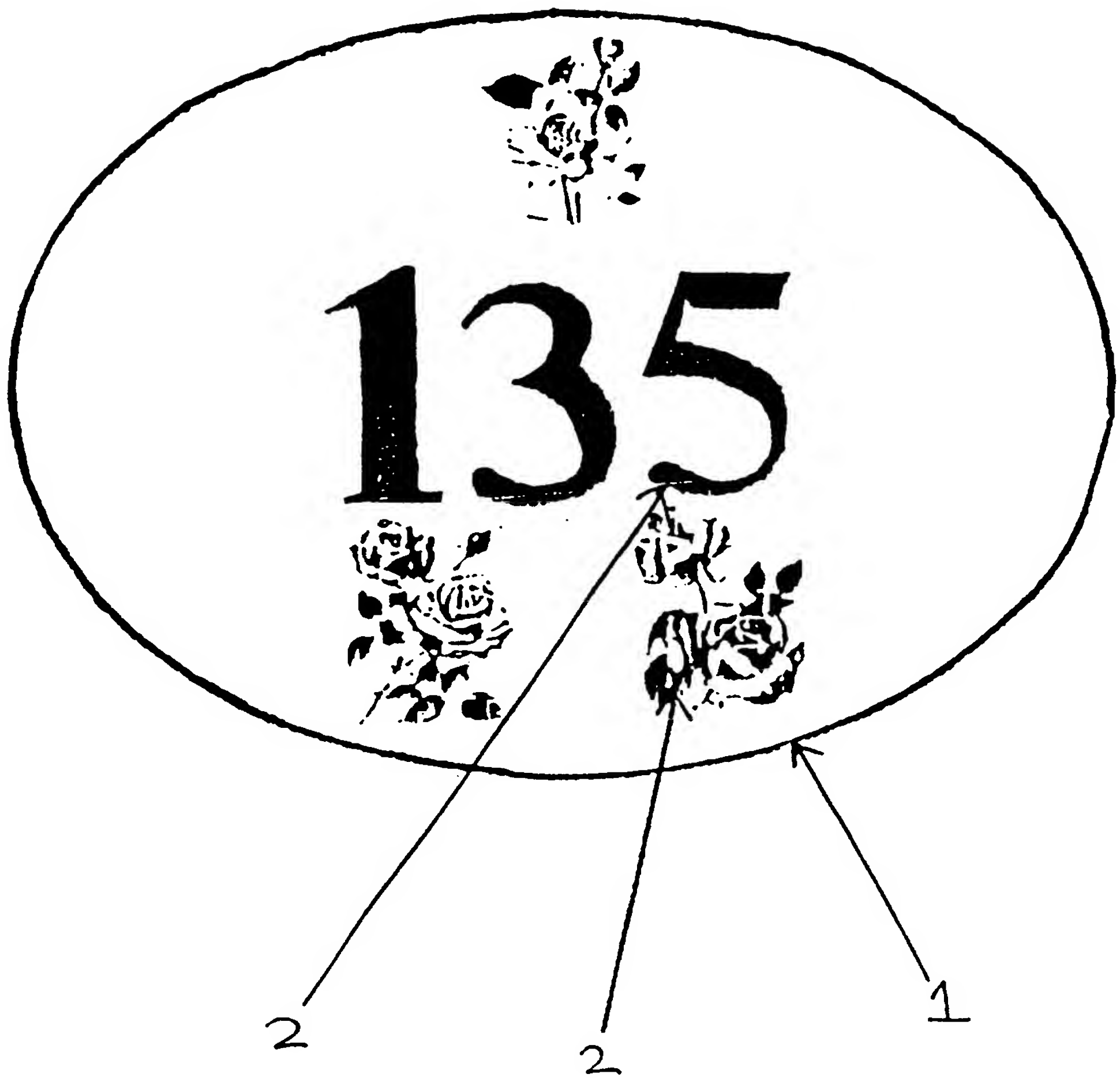
FIGURE 2



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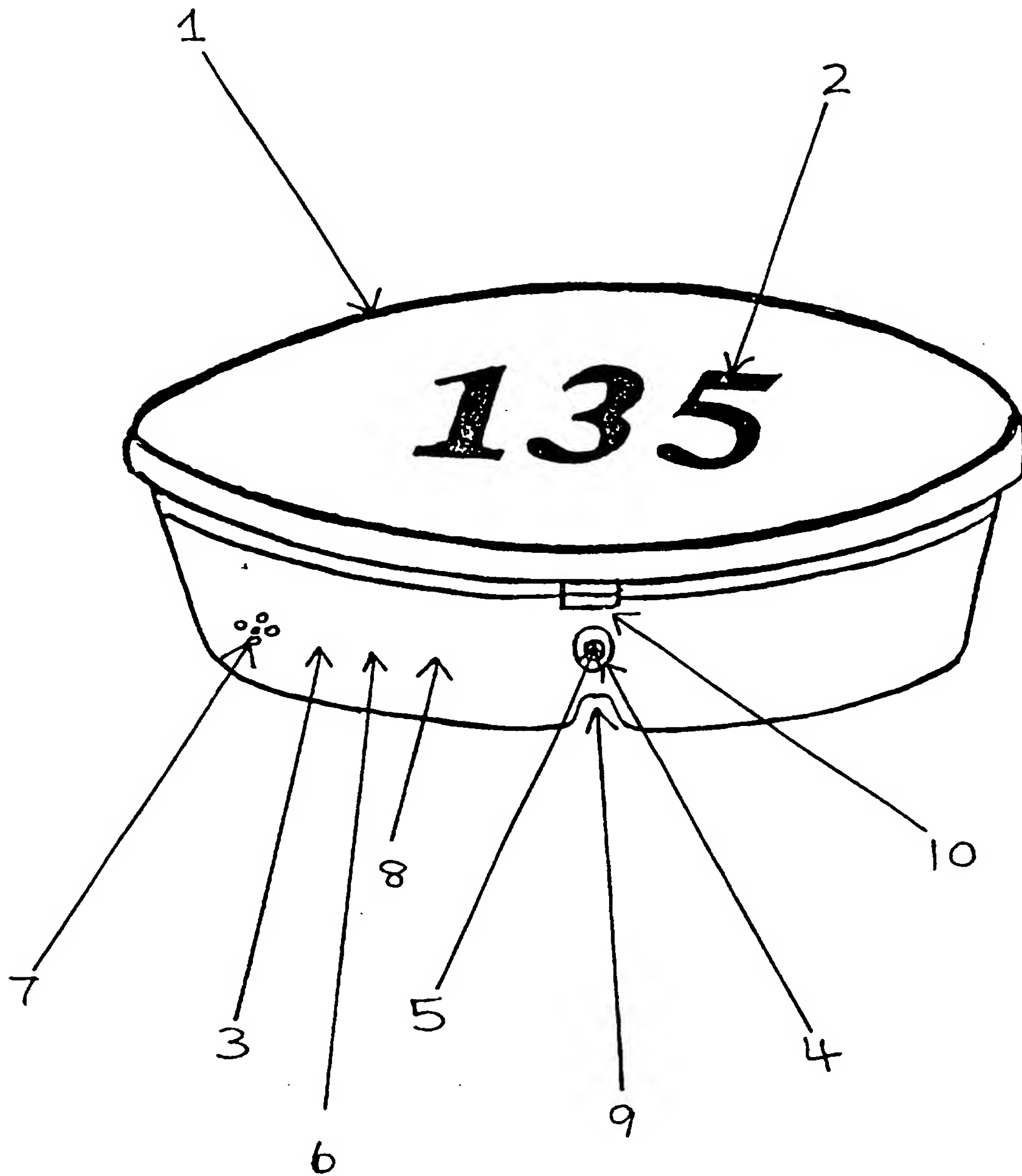
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FIGURE 1



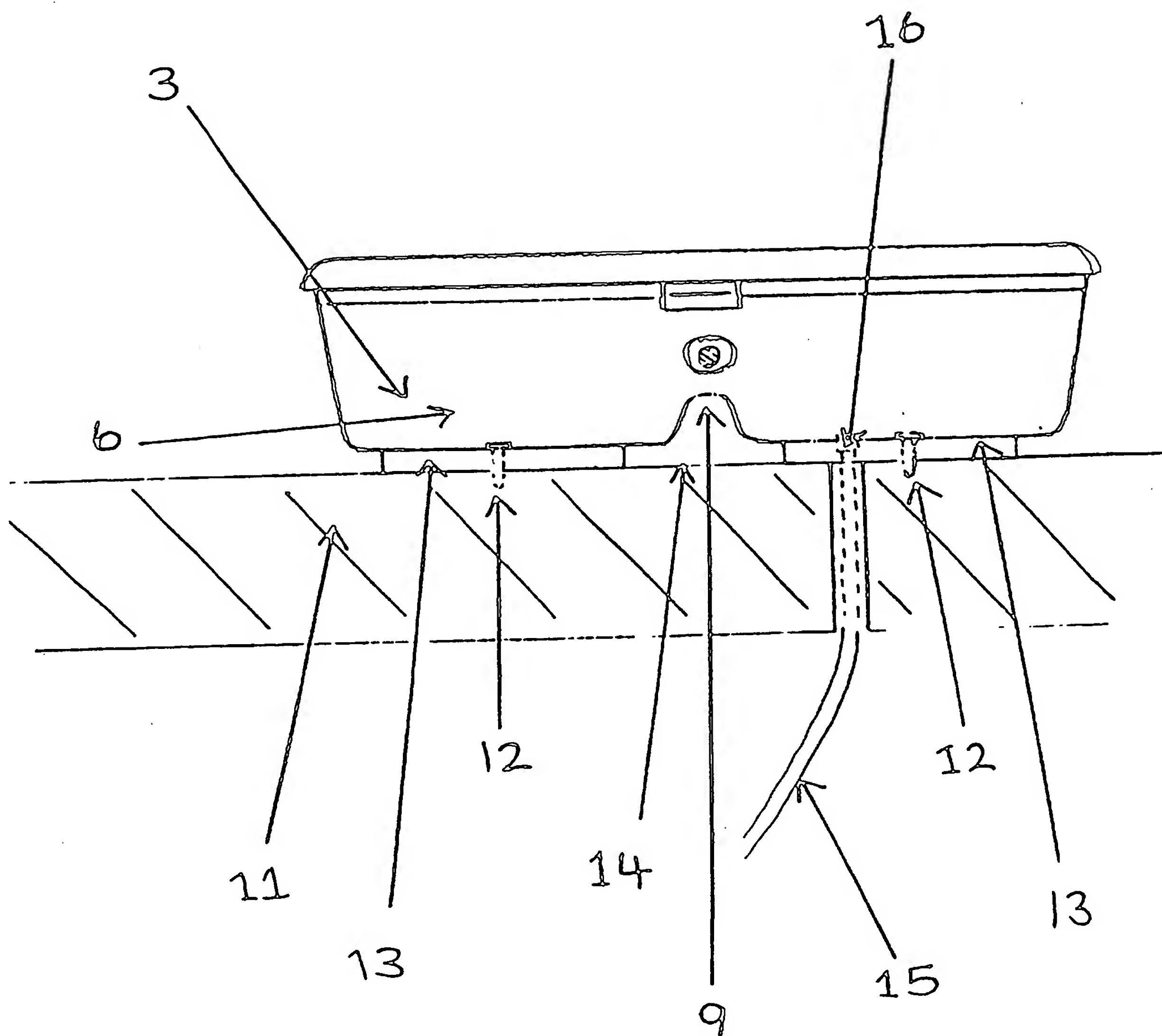
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FIGURE 2



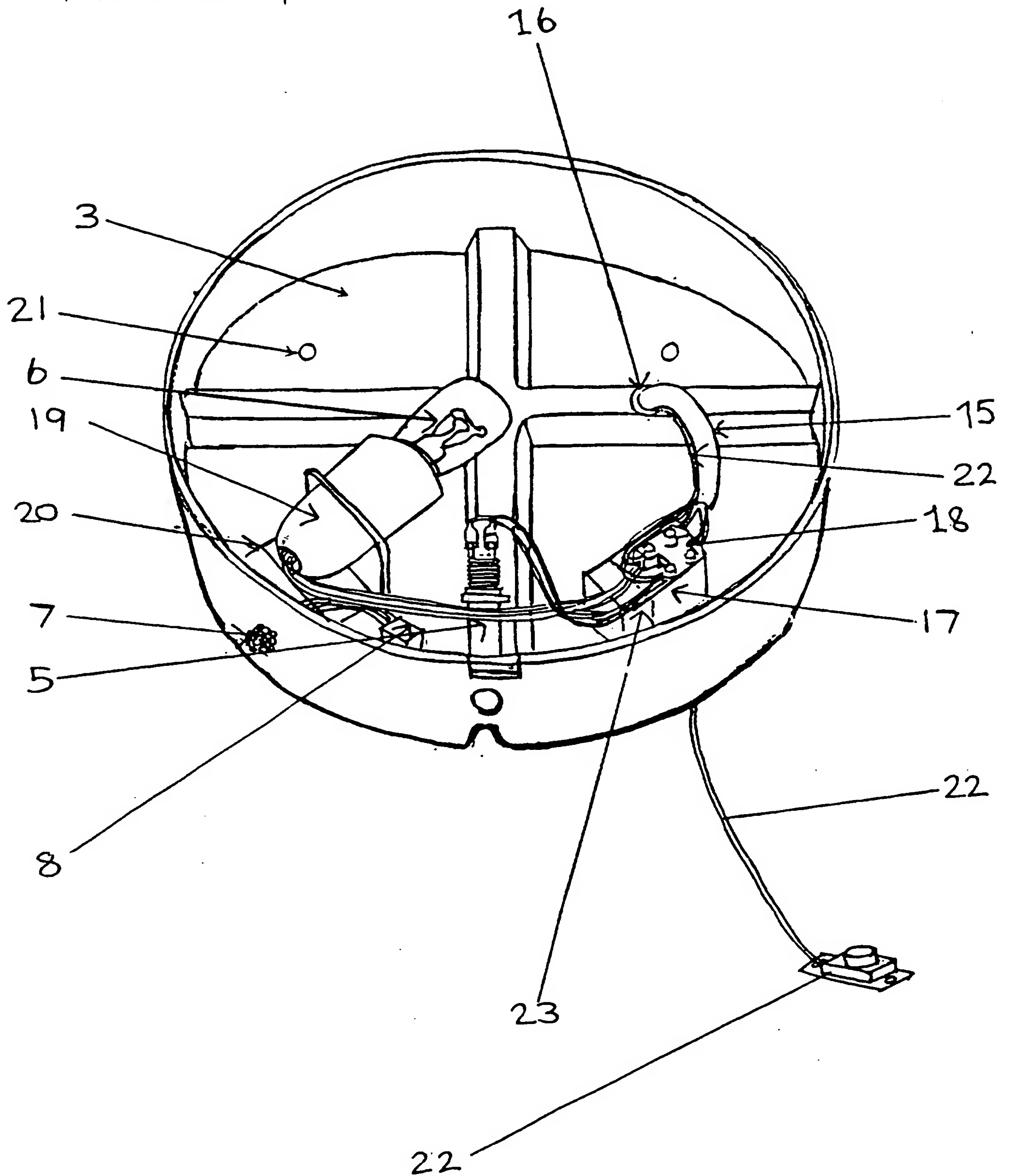


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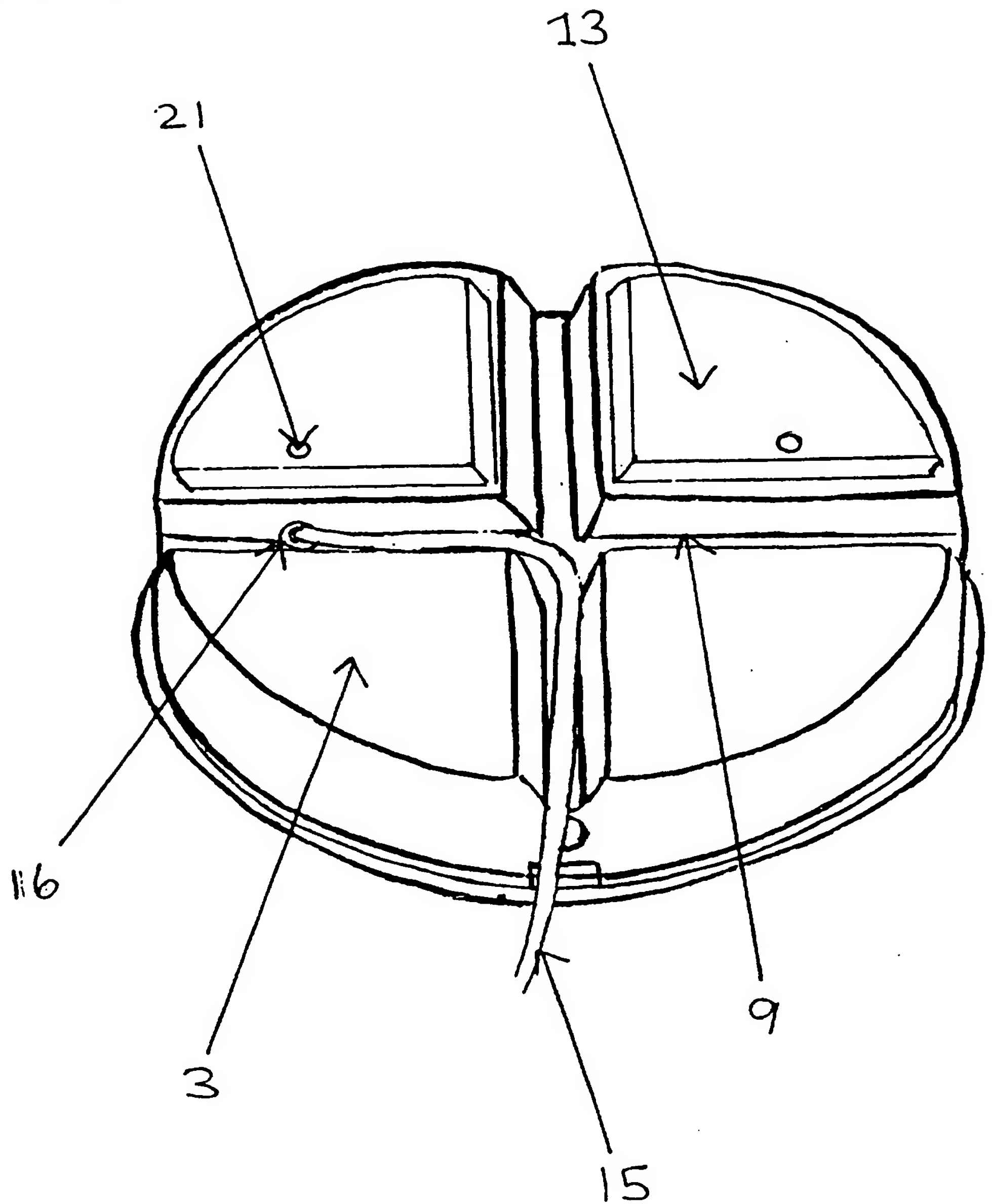
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FIGURE 4



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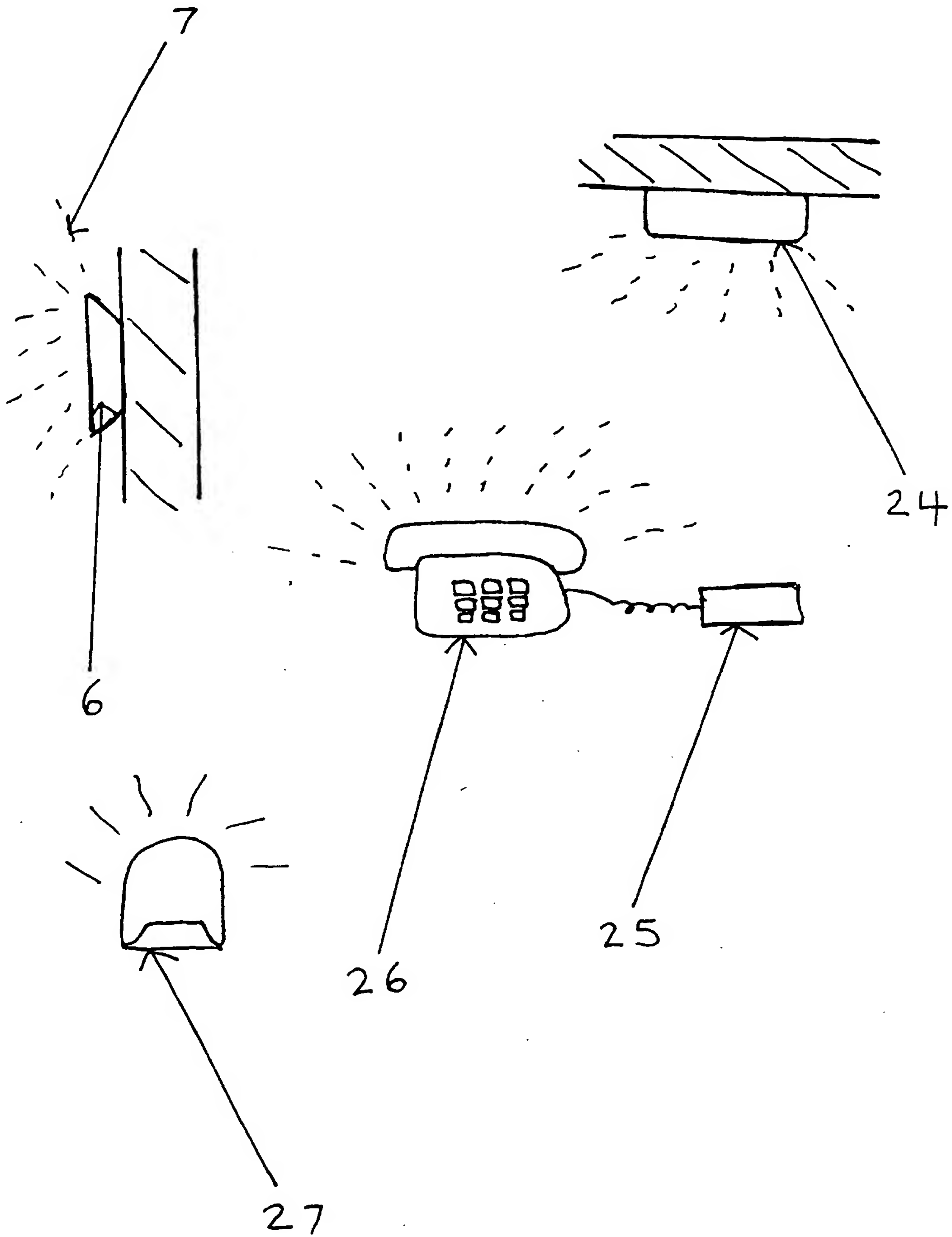
FIGURE 5





6/6

FIGURE 6



## SECURITY WARNING SIGN LIGHTING SYSTEM.

This invention relates to a security warning sign lighting system which automatically lights up as daylight fails. Also when an external switch, e.g. either a push button or hand-held remote control device is pressed it causes the invention to flash on and off as well as emitting a loud sound, i.e. a siren to go off. The invention could be attached to a smoke, gas detector and telephone ( voice system ). In the event of a disaster ( e.g. fire, gas leak, and flood, or unfortunately the occupier was fast asleep ), the invention would be activated, e.g. causing it to flash on and off, emitting a siren to go off. This would waken up the house holder and also inform their neighbours telling them to stay well clear and to inform the emergency services. Also the disaster would cause the telephone system to send a voice message to the emergency services that there is a disaster ( instructing them of the type of disaster, i.e. fire, gas leak. Informing them of when it happened and location of the particular premises ).

Unfortunately in the evening a visiting friend or the emergency services have difficulty locating a particular premises. They approach a persons drive to try and identify the house number causing the occupier to become frightened and worried about it being a prowler. The sound of the emergency services approaching without the occupier having called them could also cause distress.

If the approaching person was an unwelcome guest how could the householder raise the alarm? If they had a phone they could ring for the police but this could take many minutes and they would still be distressed

Unfortunately it could be even worse if the occupier was in bed and they heard someone trying to break in their home how could they call for help?, e.g. if the phone was down stairs, especially if they were an old aged pensioner, or disabled. They would be panicking upstairs, frightening of losing their possessions or even their lives, etc.

If they were to have an accident whilst at home alone, e.g. during a fire they may fall to the floor due to inhaling the fumes / being injured, how could they reach for the telephone to call for help? How could they shout out if they are too weak, etc?

Every year people die from carbon monoxide, gas poisoning and accidents, e.g. too weak to call for help. Also if the occupier was not in their premises and they had a fire, gas leak or flood, how would they know about the disaster, also it could be too late for the emergency services to save their home.

It is evident that the afore said problems need to be addressed in order to give peace of mind to the householder by stopping unwanted visitors approaching their residence and enabling them, to raise the alarm should they be in distress or suffer a disaster. Also they and the emergency services need to be informed that the particular property is on fire, etc.

There are available numerous security products which try to combat such problems e.g. home security devices ( intruder alarms ) which activate a siren ( loud walling noise ) when a door is opened / unauthorised persons enter the premises. Unfortunately however these type of devices could sound off accidentally, e.g. due to lightning, etc. Thus creating ' nuisance' calls for the emergency services and so not only wasting precious resources but they could also cost the life of a person, e.g. due to the afore mentioned, they might not have enough time to rescue the particular person, etc. Another problem is still the fact of precisely locating the premises in the dark - the activation of a mere siren would not make this as easy as it could be and could only narrow it down than a single one as could be the case with this invention so having precisely seconds, minutes.....

In the event of fire, a smoke detector would be emitted, but again it could take a long time for the emergency services to come to the occupiers premises, again how could the emergency services quickly locate the house holder who was in times of distress?

It is the aim of the security warning lighting system to address the afore mentioned problems by clearly illuminating a sign during both the day and night. It would prevent unwanted visitors e.g. a prowler approaching the persons drive, i.e. stopping them make the excuse of saying they have got the wrong house number. Also, if the occupier was woken up by a prowler they could press the remote control device. This would activate the invention e.g. causing it to flash on and off and also a siren to go off, causing the prowler to leave. This would also alert their neighbours and friends to ring the police.

Also if the occupier had a fire, gas leak or flood, the relevant detector ( gas, smoke ) would cause the invention light source to flash on and off and also emit a siren / voice system to go off. This would cause the house holder to be woken up and also alert their neighbours to stay well clear and to call for the emergency services. Also the detector would activate the telephone voice system which would cause the persons telephone to call for the emergency services ( voice system ) to inform them that there has been a disaster ( instructing them on the time and the type of disaster, and location of the particular premises ).

When the system was previously installed the occupier asked their neighbours to come round and watch it being activated, e.g. flashing on and off and the siren emitting a loud noise.

The occupier asked them to call the emergency services if they heard or saw the device being activated day or night. Thus in the future if the device were activated, the neighbour would recognise the sound, voice system e.g. no thinking it was a car alarm going off, but their neighbour being in distress calling for help.

Again if the occupier had an accident in their home they would raise the alarm by simply pressing the external switch to activate the device alerting their neighbours. Thus not being in pain or afraid for hours / days, etc.

#### Brief description of the illustrations

A specific embodiment of the invention will now be described by way of example with reference to the accompanying diagrams comprising the following;

- Figure 1        Plan view
- Figure 2        Front perspective view
- Figure 3        Side view
- Figure 4        Internal view
- Figure 5        Rear perspective view
- Figure 6        Invention connected to various devices  
                  (e.g. smoke detector, telephone system )

Referring to figure 1, the lid 1 is illustrated as being oval shape but it could be based on any shape, size, colour or texture. The lid 1 could be made from a strong robust ( e.g. to withstand vandalism and all weather conditions ) translucent / opaque plastic material which would allow light to shine through it. The transfers / sign 2 ( which are high quality, e.g. to withstand UV ( ultraviolet ) rays and all weather conditions i.e. to not fade or flake / break away ) could feature any colours or theme and be made from a variety of different materials, e.g. they could be waterbased, i.e. applied by dipping them in water and then applying them to the surface of the lid 1. The surface would then need wiping with a suitable cloth to remove any surplus water, ii, the transfers / sign 2 could be fixed to the surface of the lid 1 by way of silk screen printing or iii, with a template i.e., applying paint to create the design of the template, iv, the transfers / sign 2 could be made from a high quality vinyl material which would have a strong sticky back surface which would be applied to the surface of the lid 1.

The transfers / sign 2 could be applied to the surface of the lid 1 by using a template which has relevant slits when a pencil is placed along the slits / grooves, and the template is removed, there are clearly pencil lines which will enable the user to fit the transfers / sign 2 to the surface of the lid 1. The user would then simply apply a damp cloth to remove the pencil marks.

Referring to figure 2, the lid 1 could be attached to the device base 3 ( which could take on any shape or design both externally and internally ) by either the lid 1 having an inner rim which fits to the lip of the device base 3 or the lid 1 could also be attached to the device base 3 by a number of screws or by applying glue.

Once the lid 1 is clicked down on to the device base 3, it could be safely secured by the device base 3 having a locking device fitted inside it, e.g. contained in the device base 3 could be either a plastic / brass key barrel ( or any other suitable locking system ) when a key is inserted into which and turned, this will then secure the lid 1 to the device base 3. The lid 1 and the device base 3 could also be connected by any other suitable method ). Attached ( glued or bonded / welded by design ) to the rim of the device base 3 could be a gasket.

When the lid 1 is connected to the device base 3, the gasket would stop water, dirt and insects getting inside the device base 3. The sensor hole 4 allows light to reach the light sensor 5 and also allows water / condensation to escape from inside the device base 3.

The light sensor 5 detects the light and when there is no more light, i.e. when night falls, the light sensor 5 will cause an internal lamp 6 ( which would be any that was suitable, e.g. a piggy lamp ) to light up. This will cause the lid 1 and transfers 2 to become illuminated. The speakers 7 will allow sound to be emitted in the event of the internal siren 8 being activated.

The channels 9 allow cable to run through them. The release mechanism 10 allows the lid 1 to separate from the device base 3, e.g. by utilising a coin or a suitably shaped instrument to prise the lid 1 open.

Referring to figure 3, the device base 3 could be attached to the wall 11 by a series of screws 12. The rubber guards 13 stop the device base 3 from scratching against the surface of the wall 14. The rubber guards 13 also allow the device base 3 to be firmly secured to the wall 11. The channels 9 allow the cable 15 to easily fit in the gromet 16. The gromet 16 prevents water and dirt entering the device base 3.

The device base 3 could be made from a suitable strong robust ( to withstand vandalism and all weather conditions ) plastic / metal material, e.e. brass or from wood, etc. The device base 3 inner surface could be made from a suitable texture / material or sprayed, painted silver or any other suitable colour in order to uniformly ( evenly ) spread the amount of light being generated by an internal lamp 6. Also the texture / material ( e.g. tin or aluminium, etc ) / colour would also dissipate, e.g. reduce the amount of heat being generated by the internal lamp.

Referring to figure 4, the cable 15 which provides electricity from the mains would be fed through the gromet 16 ( the gromet stops water / dirt entering the device base 3 ) to enter inside the device base 3. The electricity carried in the cable 15 would be connected to the electronics control system 17 housed inside the device base 3. The electronics control system 17 could be either contained within a box or moulded into the device base 3. The cable 15 could be connected to the electronics control system 17 by a strip wire connector 18 fitted to the electronics control system 17.

The housing of the electronics control system 17 would prevent a fatal accident, e.g. electric shock...

The electronics control system 17 would cause the electricity traveling through the cable 15 to drop to a safe low voltage ( e.g. perhaps achieved by a typical transistor, i.e. a triac or thyristor, or relay ,etc ) which would drive the light sensor 5. The light sensor 5 would cause the lamp 6 ( e.g. a pigmy lamp or any other suitable form ) to light up in the evening.

The light sensor 5 would cause this by detecting the lack of light as dusk falls and then sending an appropriate voltage signal to the electronics control system 17 which would in turn cause the lamp 6 to become illuminated. The lamp 6 could be fitted to a typical lamp holder 19 ( either plastic or brass bayonet cap / edison screw , etc ). The lamp holder 19 could be connected to the device base 3 by way of the lamp holder bracket 20 or any other from of suitable methods of connection ). The device base holes 21 would allow the user to fit screws through them in order to fit the device base 3 to a suitable surface, e.g. a wall.

The external switch device 22 could either be a mechanical switch, e.g. a push button connected to the electronics control system 17 by a cable / wire or a hand-held remote control device, e.g. which was either radio controlled, passive infrared or ultra sonic, etc.



When the external switch device 22 activated e.g. pressed in , this will send a signal to the internal switch control device unit 23.

The internal switch control device unit 23 will then send a signal to the electronics control system 17 and this will then cause the lamp 6 to flash on and off and also the siren / alarm 5 to let out either a pre-recorded voice message, e.g. stating 'the person is in distress, they need assistance' or a continuous / series of loud bleeps ( high-pitched sound ) through the speakers 7.

When the external switch device 22 is pressed in again this will cause the internal switch control device unit 23 to send a signal to the electronics control system 17. This will then stop the lamp 6 from flashing on and off and will stop the siren / alarm 5 from sounding, etc.

The invention could be designed so that the sign could be switched on in the evening, e.g. illuminated by the user pressing a mechanical switch, i.e. in order to help the following to easily locate them, visitor / doctor or taxi, etc.

The invention could be designed so that it contains a battery backup, e.g. in the event of a mains power failure the battery backup would be activated, i.e. providing enough power to make the invention function. When the mains power supply was working again, the associated electronics which controlled the battery backup would notice this, switching the battery backup off. Connected to the battery backup could be a battery charger, e.g. which would make sure that the battery backup was fully charged for when it would be needed.

The invention could be designed so that the light source ( e.g. strobe / fluorescent lamp with associated control gear, or lamp 6 etc ) is activated in the evening, e.g. when someone approaches the persons drive and was in the same direction and range of the invention sensor, PIR, passive infrared device, this would detect the persons presence causing the invention light source to come on.

The invention could be designed so that the electronics control system 17 could be powered by the battery source, which could contain a sensing device which would monitor the strength of the batteries and thus inform the user, e.g. by either visual form or / and also switching a series of bleeps and flashing LED(s), e.g. to inform them to charge or replace the batteries.

The invention could be designed so that the electronics control system could be powered by a solar cell source which in the day time charges up a battery pack. In the day time the battery pack still provides enough power to make the invention function, e.g. to give the user the ability to activate the external switch device 22 if they wished.

Due to the solar cells charging up the battery pack in the day time, this enables enough power to make the invention function, e.g. to illuminate the sign in the evening and for the user to activate the external switch device 22 if they again so wished.

The device base 3 could be designed so that it contains a power point which would be inserted e.g. slotted inside an external power source socket which contains a live mains supply which is fitted to a solid surface, e.g. a wall. The external power source socket and the device base 3 power point connector would each contain protective sleeving so as to stop dirt / water, etc entering and the need for any unsightly and potential hazardous mains wiring.

The electronics control system 17 could be designed so that it has a series of connectors which allow the external switch device 22, e.g. the push button to be connected to them at a later date as well as the siren / alarm 6 and speakers 7.

The electronics control system 17 could be designed so that it is controlled by a micro-processor / semi conductor, e.g. which could either be already connected to the electronics control system 17 or there could be a facility for it to be attached at a later date.

The micro-processor / semi conductor could consist of the internal switch control device unit 23, which would control the external switch device 22, eg the hand-held remote control device. Thus the user at the start could purchase the standard version, e.g. which illuminated a sign in the evening and at a later date purchase the micro processor / semi conductor, external switch device 22, e.g. the hand-held remote control device, siren / alarm 6 and speakers 7. Before installation they would switch off the mains and then remove the device lid 1 and insert / slot the micro processor / semi conductor into its appropriate place, e.g. into the IC integrated circuit system PCB, printed circuit board.

Then connecting the siren / alarm 6 to the electronics control system 17 and connecting / clicking the speakers 14 in to its appropriate place inside the device base 3 and then connecting it to the siren / alarm 6. Once the micro processor is connected to the electronics control system 17, the lid 1 is connected and the mains is switched on.



The micro processor will re-programme the electronics control system 17 to allow the external switch device 22, e.g. hand-held remote control device to function. Thus when it is activated it will cause the lamp 6 to flash on and off and also the siren / alarm ( voice system ) 8 to be activated.

The invention could be designed so that it is connected to a small security camera which is then fitted into the device base 3. The camera would appear through a small hole of the lid 1. The camera would be connected to a suitable security system ( TV monitor and controls ). The house holder then has the ability to monitor any person approaching their drive. The unknowing person would not notice the camera, all they would see is the illuminated domestic house sign.

Referring to figure 5, the rubber guards surface 13 could be adhesive to enable its easy application to the surface of the device base 3. The cable 15 could be fed along the device base 3 by way of any of the four channels 9 through the gromet 10 to enter the device base 3. The rubber guards 13 could be firmly secured to a wall by simply inserting a number of screws through the device base holes 21 which are situated inside the surface of the device base 3. Then firmly using an appropriate screw driver to drive the screws through the rubber guards 13 to enter inside the surface of a wall.

The invention could be designed so that it is connected to a buzzer ( bell ) / chime.

Referring to figure 6, if the house holder was asleep or out of the property and they had a disaster ( fire, gas leak or flood ) at their home. the detector 24 would detect the disaster and so would cause the invention light 6 to flash on and off and also cause the invention siren 7 to be activated this could alert their neighbours that there has been a disaster. Also the detector 24 would activate the telephone system 25 which would send a voice message ( instructing them of the type of disaster i.e. fire, gas leak , what time the disaster happened, and location of the premises ) through the telephone 26 to the emergency services 27 who would come to the occupiers assistance.

# CLAIMS

1. A security warning sign lighting system ( known as the system ) which could be powered by various power sources such as ; mains electricity, battery or solar cells. The particular power is applied to the system internal power point. The power point drives the systems internal light sensor which in the evening detects the lack of light, causing the internal lamp control unit lamp to illuminate the system lid which applied to it is a transfer / sign. The illuminated transfer / sign enables visitors to identify the property. The transfer / sign applied to the system lid by using a securing procedure. The system base is connected to the system lid by using fastening and locking devices. Attached to the system base is a series of rubber guards, they enable the system base to be firmly attached to a typical hard surface such as a wall. Connected to the system is a external switching system. When switched on ( activated ) it causes the system internal lamp control unit lamp to flash on and off and also the internal alarm / voice system to emit. Also connected to the system is a smoke detector, and telephone control system. When the detector is switched on ( activated ) due to a disaster, e.g. a fire, gas leak it causes the system internal lamp control unit lamp to flash on and off and also the internal alarm / voice system to be activated. Also the detector activates the telephone control system which sends a voice message through the telephone to the emergency services.
2. A internal lamp control unit as claimed in Claim 1 which the light source could be a pygmony lamp or any other lamp that can be suitably noused inside the system base.
3. A internal lamp control unit as claimed in claim 2 which the lamp is connected to a typical lamp holder such as a plastic / brass bayonet cap or edison screw.
4. A securing procedure as claimed in claim 1 which the transfer / sign is attached to the system lid by using a transfer / sign which is water based. Wetting the transfer / sign and applying it to the system lid, using a cloth to dry the transfer / sign
5. A securing procedure claimed in claim 4 the transfer / sign would be applied to the system base by silk screen printing.
6. A securing procedure as claimed in laim 4 the transfer / sign made from a vynl material which has a sticky back surface which would be applied to the surface of the system lid.

CLAIMS

7. A securing procedure as claimed in claim 4 the transfer / sign is applied to the system lid by using a template and applying paint against the template to create the particular transfer / sign.

8. A securing procedure as claimed in claim 4 the transfer / sign is applied to the system base by using a template which has got slots / grooves, when a pencil is placed along the slots / grooves and the template is removed, there are clearly pencil marks. The transfer / sign as claimed in claims 4, 5, 6, 7 would be applied. A cloth would be used to remove the pencil marks.

9. Fastening devices as claimed in claim 1, the system base is attached to the system lid by using screws, glue or the inner rim of the system lid by clicking on to the system base surface. The user would use a suitable instrument, e.g. a coin to prise the system lid away from the system base.

10. Locking devices as claimed in claim 1, the system lid would be safely attached to the system base by the locking device fitted inside it. This could either be a plastic / brass key barrel and when a key is inserted and turned it causes the system lid to be locked to the system base.

11. The system base as claimed in claim 1 would have a gasket fitted to it, when the system lid is attached to it, this would stop water, dirt and insects getting inside the system base.

12. The rubber guards as claimed in claim 1 when attached by glue to the system base, allow the system base to be firmly placed against a hard surface such as a wall.

13. The channels as claimed in claim 1 allow cable / wire to feed in a variety of directions to go through the gromet to go to the internal system power source.

14. The external switching system as claimed in claim 1 could either be a mechanical switch, e.g. a push button connected to the system by a cable / wire or a hand-held remote control device, e.g. which was either radio controlled, passive infrared or ultra sonic.

15. The external switching system as claimed in claim 1 & 14 when activated causes the internal alarm / voice system to either emit a siren / alarm or let out a pre-recorded message such as to state that the person is in danger.

## CLAIMS

16. The system as claimed in claim 1 is activated so that when a button is pressed it causes the system lamp to come on, and also the alarm / voice system.

17. The power source as claimed in claim 1 a battery source e.g. a battery backup is connected to the system, in the event of a power failure the battery backup would be activated to keep the system running.

18. The power source as claimed in claim 17 the battery source would contain a sensing device which would monitor the strength of the batteries and thus visually ( by flashing leds ) and by letting off a series of beeps to inform the house holder to charge or replace the batteries.

19. The power source as claimed in claim 1 the system would be powered by batteries which are given energy from solar cells.

20. The system as claimed in claim 1 contains an internal integrated circuit, PCB board fitted. The integrated circuit, PCB board is connected to a micro processor / semi conductor. The micro processor / semi conductor allows the external switching system to function, which controls the flashing of the internal lamp and alarm / voice system.

21. The system as claimed in claim 1 & 20 has an internal integrated circuit, PCB board fitted. A micro processor / semi conductor can be later on connected to it. The micro processor / semi conductor when connected to the integrated circuit, PCB board programs the system to allow the external switching system to function, which controls the flashing of the internal lamp and alarm / voice system.

22. The internal lamp control unit as claimed in claim 1 would be connected to a PIR device. When a person approaches the PIR it will cause the internal lamp control unit lamp to come on.

23. The system as claimed in claim 1 is connected to a security camera which is fitted inside the system base. The security camera appears through a small hole of the system lid. The camera is fitted to a TV monitor and when switched on, allows the house holder to view people approaching their drive.

24. The system as claimed in claim 1 could be connected to a buzzer ( bell ) / chime.



Application No: GB 9720938.1  
Claims searched: 1

Examiner: David Summerhayes  
Date of search: 29 January 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): G4F (FAA); G4N (NDAX); G5C (CEL)

Int Cl (Ed.6): G08B 5/00, 5/36, 5/38; G09F 13/04

Other: ONLINE: WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
Y	GB 2293678 A (HILL)	1
Y	EP 0369737 A2 (BARTLETT)	1
Y	US 4929936 (FRIEDMAN)	1
Y	US 4901461 (EDWARDS)	1
Y	US 4855723 (FRITZ)	1
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